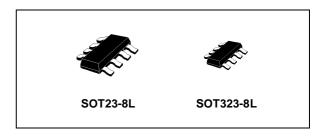


74V2T125

DUAL BUS BUFFER (3-STATE)

PRELIMINARY DATA

- HIGH SPEED: $t_{PD} = 3.8 \text{ns}$ (TYP.) at $V_{CC} = 5 \text{V}$
- LOW POWER DISSIPATION: $I_{CC} = 1\mu A(MAX.)$ at $T_A=25$ °C
- COMPATIBLE WITH TTL OUTPUTS: V_{IH} = 2V (MIN), V_{IL} = 0.8V (MAX)
- POWER DOWN PROTECTION ON INPUTS AND OUTPUTS
- SYMMETRICAL OUTPUT IMPEDANCE: |I_{OH}| = I_{OL} = 8mA (MIN)
- BALANCED PROPAGATION DELAYS: $t_{PLH} \cong t_{PHL}$
- OPERATING VOLTAGE RANGE: V_{CC}(OPR) = 4.5V to 5.5V
- IMPROVED LATCH-UP IMMUNITY



ORDER CODES

PACKAGE	T&R
SOT23-8L	74V2T125STR
SOT323-8L	74V2T125CTR

DESCRIPTION

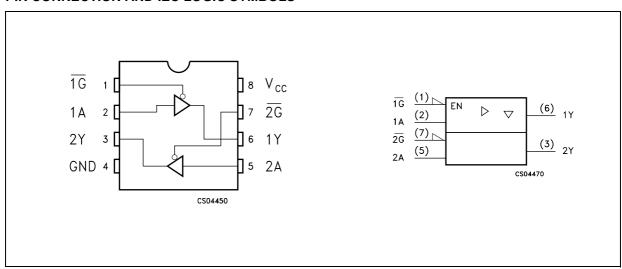
The 74V2T125 is an advanced high-speed CMOS DUAL BUS BUFFER fabricated with sub-micron silicon gate and double-layer metal wiring C²MOS tecnology.

3-STATE control input $\overline{\text{nG}}$ has to be set HIGH to place the output into the high impedance state. Power down protection is provided on all inputs and outputs and 0 to 7V can be accepted on

inputs with no regard to the supply voltage. This device can be used to interface 3V to 5V systems and it is ideal for portable applications like personal digital assistant, camcorder and all battery-powered equipment.

All inputs and outputs are equipped with protection circuits against static discharge, giving them ESD immunity and transient excess voltage.

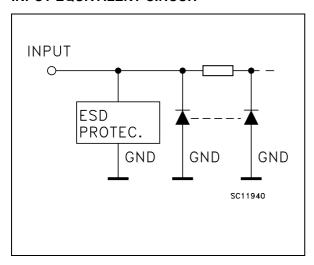
PIN CONNECTION AND IEC LOGIC SYMBOLS



December 2001 1/10

This is preliminary information on a new product now in development are or undergoing evaluation. Details subject to change without notice.

INPUT EQUIVALENT CIRCUIT



PIN DESCRIPTION

PIN No	SYMBOL	NAME AND FUNCTION
1, 7	1G, 2G	Output Enable Inputs
2, 5	1A, 2A	Data Inputs
3, 6	2Y, 1Y	Data Outputs
4	GND	Ground (0V)
8	V _{CC}	Positive Supply Voltage

TRUTH TABLE

Α	G	Y
X	Н	Z
L	L	L
Н	Ĺ	Н

X: "H" or "L" Z: High Impedance

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CC}	Supply Voltage	-0.5 to +7.0	V
V _I	DC Input Voltage	-0.5 to +7.0	V
Vo	DC Output Voltage	-0.5 to V _{CC} + 0.5	V
I _{IK}	DC Input Diode Current	- 20	mA
I _{OK}	DC Output Diode Current	- 20	mA
Io	DC Output Current	± 25	mA
I _{CC} or I _{GND}	DC V _{CC} or Ground Current	± 50	mA
T _{stg}	Storage Temperature	-65 to +150	°C
T _L	Lead Temperature (10 sec)	260	°C

Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these conditions is not implied.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V _{CC}	Supply Voltage	4.5 to 5.5	V
VI	Input Voltage	0 to 5.5	V
Vo	Output Voltage	0 to V _{CC}	V
T _{op}	Operating Temperature	-55 to 125	°C
dt/dv	Input Rise and Fall Time (note 1) ($V_{CC} = 5.0 \pm 0.5V$)	0 to 20	ns/V

1) V_{IN} from 0.8V to 2V

DC SPECIFICATION

		Test Condition		Value							
Symbol	Symbol Parameter		V _{CC}		A = 25°	C	-40 to	85°C	-55 to 125°C		Unit
		(V)		Min.	Тур.	Max.	Min.	Max.	Min.	Max.	
V _{IH}	High Level Input Voltage	4.5 to 5.5		0.8			0.8		0.8		V
V _{IL}	Low Level Input Voltage	4.5 to 5.5				2.0		2.0		2.0	V
V _{OH}	High Level Ouput	4.5	I _O =-50 μA	4.4	4.5		4.4		4.4		V
	Voltage	4.5	I _O =-8 mA	3.94			3.8		3.7		V
V _{OL}	Low Level Output	4.5	I _O =50 μA		0.0	0.1		0.1		0.1	V
	Voltage	4.5	I _O =8 mA			0.36		0.44		0.55	V
I _{OZ}	High Impedance Output Leakage Current	5.5	$V_I = V_{IH}$ or V_{IL} $V_O = 5.5$ or GND			±0.25		± 2.5		± 5	μΑ
l _l	Input Leakage Current	0 to 5.5	V _I = 5.5V or GND			± 0.1		± 1		± 1	μΑ
I _{OPD}	Power down Output Leakage Current	0	V _O = 5.5			0.5		5		10	μΑ
I _{CC}	Quiescent Supply Current	5.5	$V_I = V_{CC}$ or GND			1		10		20	μΑ
△lcc	Additional Worst Case Supply Current	5.5	One Input at 3.4V, other input at V _{CC} or GND			1.35		1.5		1.5	mA

AC ELECTRICAL CHARACTERISTICS (Input $t_r = t_f = 3ns$)

	Test Condition			Value									
Symbol Parameter		v _{cc}	CL		Т	T _A = 25°C		-40 to 85°C		-55 to 125°C		Unit	
		(V)	(V)	(pF)		Min.	Тур.	Max.	Min.	Max.	Min.	Max.	
t _{PLH}	Propagation Delay	5.0 ^(*)	15			3.8	5.5	1.0	6.5	1.0	7.5		
t _{PHL}	Time	5.0 ^(*)	50			4.3	6.5	1.0	7.5	1.0	8.5		
t _{PLZ}	Output Disable	5.0 ^(*)	15	$R_L = 1 \text{ K}\Omega$		3.6	5.0	1.0	6.0	1.0	7.0	no	
t _{PHZ}	t _{PHZ} Time	5.0 ^(*)	50	$R_L = 1 K\Omega$		5.1	7.0	1.0	8.0	1.0	9.0	ns	
t _{PZL}	Output Enable	5.0 ^(*)	15	$R_L = 1 \text{ K}\Omega$		3.7	5.9	1.0	7.0	1.0	8.0		
t _{PZH}	Time	5.0 ^(*)	50	$R_L = 1 \text{ K}\Omega$		4.1	6.5	1.0	7.5	1.0	8.5		

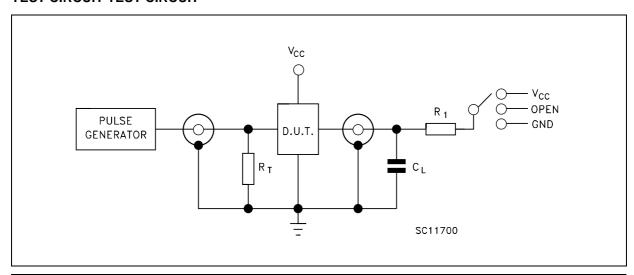
^(*) Voltage range is 5.0V ± 0.5V

CAPACITIVE CHARACTERISTICS

		Test Condition Value								
Symbol Parameter			T	T _A = 25°C			-40 to 85°C		-55 to 125°C	
			Min.	Тур.	Max.	Min.	Max.	Min.	Max.	
C _{IN}	Input Capacitance			4	10		10		10	pF
C _{OUT}	Output Capacitance			6						pF
C _{PD}	Power Dissipation Capacitance (note 1)			14						pF

¹⁾ C_{PD} is defined as the value of the IC's internal equivalent capacitance which is calculated from the operating current consumption without load. (Refer to Test Circuit). Average current can be obtained by the following equation. $I_{CC(opr)} = C_{PD} \times V_{CC} \times f_{IN} + I_{CC}/2$

TEST CIRCUIT TEST CIRCUIT



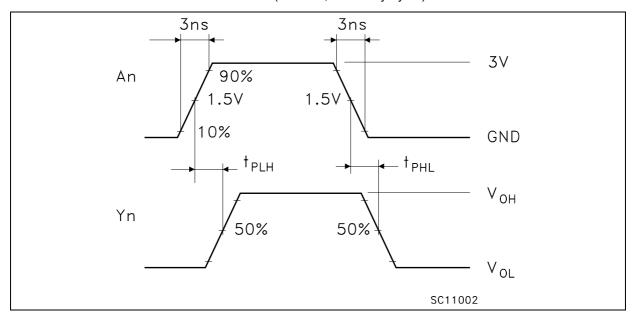
TEST	SWITCH
t _{PLH} , t _{PHL}	Open
t _{PZL} , t _{PLZ}	V _{CC}
t _{PZH} , t _{PHZ}	GND

 $[\]mathrm{C}_{\mathrm{L}}$ =15/50pF or equivalent (includes jig and probe capacitance)

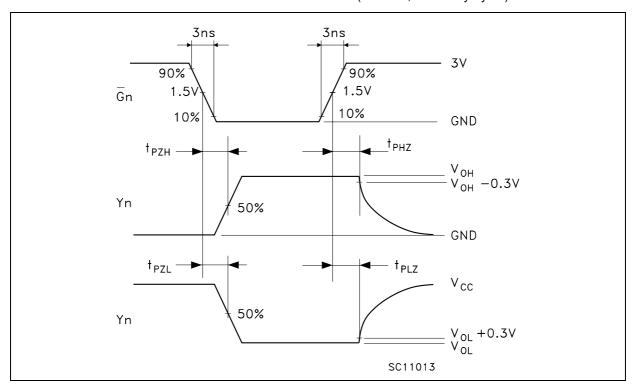
 $R1 = 1K\Omega$ or equivalent

 $R_T = Z_{OUT}$ of pulse generator (typically 50 Ω)

WAVEFORM 1: PROPAGATION DELAYS (f=1MHz; 50% duty cycle)

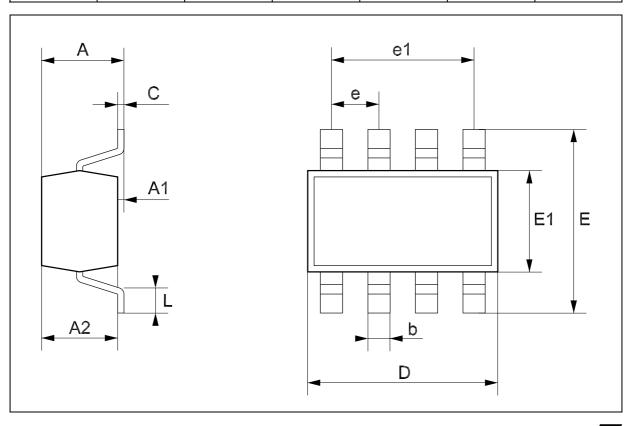


WAVEFORM 2: OUTPUT ENABLE AND DISABLE TIME (f=1MHz; 50% duty cycle)



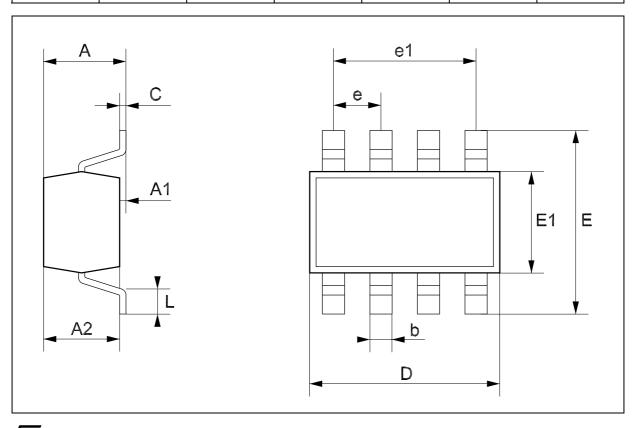
SOT23-8L MECHANICAL DATA

DIM		mm.			mils	
DIM.	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
А	0.90		1.45	35.4		57.1
A1	0.00		0.15	0.0		5.9
A2	0.90		1.30	35.4		51.2
b	0.22		0.38	8.6		14.9
С	0.09		0.20	3.5		7.8
D	2.80		3.00	110.2		118.1
E	2.60		3.00	102.3		118.1
E1	1.50		1.75	59.0		68.8
е	0	.65			25.6	
e1		1.95			76.7	
L	0.35		0.55	13.7		21.6

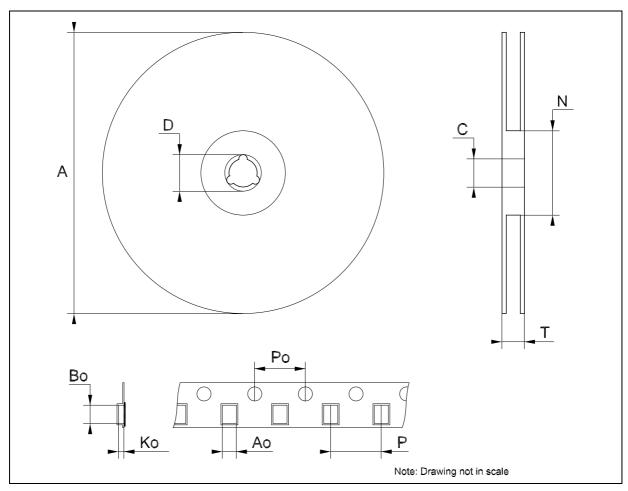


SOT323-8L MECHANICAL DATA

DIM		mm.		mils				
DIM.	MIN.	TYP	MAX.	MIN.	TYP.	MAX.		
А	0.80		1.10	31.5		43.3		
A1	0.00		0.10	0.0		3.9		
A2	0.80		1.00	31.5		34.9		
b	0.13		0.28	5.1		11.0		
С	0.10		0.18	3.9		7.1		
D	1.80		2.20	70.9		86.6		
E	1.80		2.40	70.9		94.5		
E1	1.15		1.35	45.3		53.1		
е		0.5			19.7			
e1		1.5			59.0			
L	0.10		0.30	3.9		11.8		

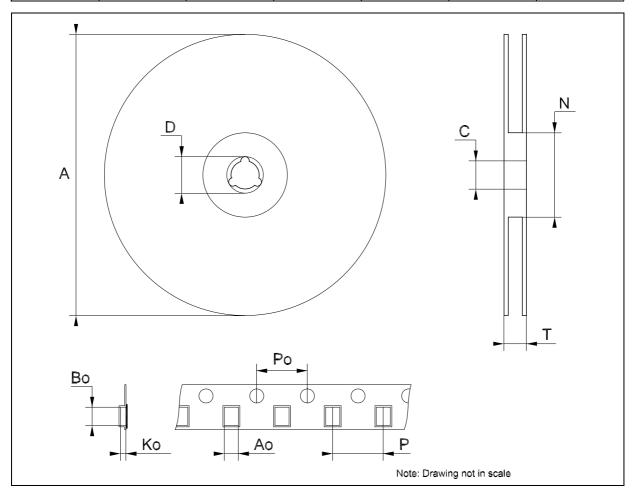


DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
А			180			7.086
С	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
Т			14.4			0.567
Ao	3.13	3.23	3.33	0.123	0.127	0.131
Во	3.07	3.17	3.27	0.120	0.124	0.128
Ko	1.27	1.37	1.47	0.050	0.054	0.0.58
Po	3.9	4.0	4.1	0.153	0.157	0.161
Р	3.9	4.0	4.1	0.153	0.157	0.161



Tape & Reel SOT323-xL MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
А	175	180	185	6.889	7.086	7.283
С	12.8	13	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	59.5	60	60.5		2.362	
Т			14.4			0.567
Ao		2.25			0.088	
Во		2.7			0.106	
Ko		1.2			0.047	
Po	3.98	4	4.2	0.156	0.157	0.165
Р	3.98	4	4.2	0.156	0.157	0.165



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